

Stevenson Fund report

My research experience at University of Kyoto - Mona Furukawa



Thanks to the Stevenson fund, I had the opportunity to undertake research for two and a half months at the University of Kyoto. I worked in the department of molecular and cellular biology under the supervision of associate professor Nobuko Hosokawa. The main research focus of the lab was on the proteins quality control in the Endoplasmic Reticulum(ER).

I got the chance to carry out research on cerebral dopamine neurotrophic factor (CDNF) and mesencephalic astrocyte-derived neurotrophic Factor (MANF), which are proteins expressed in different parts of the body including the brain. MANF and CDFN are known to protect and restore the dopaminergic neurons of the midbrain by preventing neuron's apoptosis. It is also known to be up-regulated in response to ER stress. During research, I explored both extracellular and intracellular roles of CDFN/MANF and its involvement in protein quality control using HEK293 cells. I was exposed to cell culture methodologies as well as various standard molecular biology procedures such as gel-preparation for SDS-PAGE and western blotting.

During my time at the lab, frequent discussions with Associate Professor Hosokawa and other peers stretched my ways of thinking. This developed me to think critically and view problems from multiple perspectives. Weekly journal clubs were also held in the lab, where a member of the lab gave presentation on the research paper of their interest. This session involved discussions as well as analysis of the paper, which taught me the importance of questioning the validity of the paper and coming up with possible experimental modifications that can be made to improve its validity. Moreover, we had the opportunity to present our data from the experiments carried out at the end of each months. It enabled me to practice scientific communication and improve my presentation skills.

Other than research, I got the opportunity to experience the Japanese culture at its best as Kyoto is filled with traditional historical buildings. For instance, I visited the Nijo Castle, which had many beautiful Japanese art and a Zen-garden.

Overall, the experience I had was intellectually stimulating and stretched my potential in various ways. I was able to develop crucial skills required as a researcher such as dexterity, analytical thinking and presentation skills. The cutting edge research I was exposed to and working alongside esteemed luminaries was thoroughly exciting and enriching.